R E P O R T R E S U M E S

ED 003 578 56

THE VIEWING OF ONESELF PERFORMING SELECTED MOTOR SKILLS IN MOTION PICTURES AND ITS EFFECT UPON THE EXPRESSED CONCEPT OF SELF IN MOVEMENT.

BY- SMITH, HOPE M. CLIFTON, MARGUERITE A.
CALIFORNIA UNIV., LOS ANGELES

REPORT NUMBER NDEA-VIIA-486 PUB DATE AUG 61
GRANT OEG-704105
EDRS PRICE MF-$0.09 HC-$0.92 23P.

DESCRIPTORS- *FILMS, *PSYCHOMOTOR SKILLS, *PERFORMANCE, *COLLEGE STUDENTS, PERCEPTION TESTS, SEX DIFFERENCES, LOS ANGELES, CALIFORNIA

A STUDY WAS CONDUCTED TO DETERMINE IF ONE'S EXPRESSED CONCEPT OF HIS PERFORMANCE OF CERTAIN SELECTED MOTOR SKILLS IS CHANGED THROUGH THE PROCESS OF VIEWING MOTION PICTURES OF HIMSELF PERFORMING THESE SAME SKILLS. SIXTY-FIVE COLLEGE STUDENTS 17 TO 21 YEARS OF AGE, PARTICIPATED. EACH SUBJECT PERFORMED FIVE MOTOR SKILLS IN SEQUENCE (1) WALKED 30 FEET AND RETURNED, (2) RAN 30 FEET AS FAST AS POSSIBLE AND RETURNED, (3) CAUGHT 5 VOLLEYBALLS THROWN UNDERHAND FROM A DISTANCE OF 15 FEET, (4) THREW 5 BEANBAGS OVERHAND TO A TARGET ON THE WALL 30 FEET DISTANT, AND (5) COMPLETED 3 STANDING BROAD JUMPS. ONLY THE EXPERIMENTAL SUBJECTS WERE FILMED. AFTER FILMING EACH SUBJECT WAS GIVEN A PERCEPTION CHECKLIST TO CLARIFY HOW THE SUBJECT PERCEIVED HIS MOVEMENTS. RESPONSES FROM THE CHECKLIST WERE TALLIED TO DETERMINE THE NUMBER OF POSITIVE AND NEGATIVE RESPONSES. FILMS WERE DEVELOPED AND EACH SUBJECT WAS SHOWN HIS PERFORMANCE IN RELATION TO 3 OTHER SUBJECTS. AFTER 4 WEEKS THE SUBJECTS WERE MEASURED AGAIN. RESULTS INDICATED THAT (1) SUBJECTS HELD CONCEPTS OF THEMSELVES WHICH WERE SPECIFIC TO THE PARTICULAR SKILL BEING PERFORMED, (2) MALES RELY MORE ON THE CUES RECEIVED FROM BODY SENSATION THAN THEY DO ON CUES FROM VISION, AND (3) FEMALES RELY MORE ON VISUAL CUES THAN ON BODY SENSATION. (HB)

A-486

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education
This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated do not necessarily represent official Office of Education position or policy.

OFFICIAL FILE COPY

THE VIEWING OF ONESELF PERFORMING SELECTED MOTOR SKILLS IN MOTION PICTURES AND ITS EFFECT UPON THE EXPRESSED CONCEPT OF SELF IN MOVEMENT

Hope M. Smith and Marguerite A. Clifton

Title VII Project Number 486
National Defense Education Act of 1958
Grant Number 704105

University of California
Los Angeles, California

The Research Reported Herein Was Supported by
a Grant From the
U.S. Department of Health, Education, and Welfare
Office of Education

August, 1961

ED 003578
~~ED 003878~~

FINAL REPORT

I. Identification

1. University of California, Los Angeles
2. Hope M. Smith and Marguerite A. Clifton
3. "The Viewing of Oneself Performing Selected Motor Skills in Motion Pictures and Its Effect Upon the Expressed Concept of Self in Movement"
4. September 1, 1960 - June 1, 1961
5. Grant number 486

II. Problem

It was the purpose of this study to determine if one's expressed concept of his performance of certain selected motor skills is changed through the process of viewing motion pictures of himself performing these same skills.

III. Need for the Study

Motor activity is a necessity in solving the problems of daily life, whether the problems be those of survival, work, or recreation. The teacher of physical education has, as one responsibility, that of helping youth to develop proficiency in the performance of certain motor skills needed for the successful completion of physical tasks required in daily living. Any factor which aids the teacher in increasing the student's self-understanding may facilitate the learning process.

Previous studies indicate that there is a strong link between one's perception of one's ability to perform and ability or disability to learn. Monroe (9), Axline (1), and Bixler (2) found that many children in reading clinics were unable to read proficiently because they believe they cannot read and not because of any physical eye difficulty or abnormality. Lecky (6) reports that children who were poor spellers were so because they spelled in terms of concepts they held about their capacities as spellers. When methods were employed to change these children's concepts of themselves they learned to spell with little or no difficulty. Studies such as these have led the investigators to inquire into the concepts one has of oneself in the performance of motor skills. It may well be that if the concept one has of oneself in movement is strongly related to one's ability to learn motor skills, and that concept is changed by some method, then the learning of motor skills may be enhanced. An analysis of two pilot studies (4) done by the investigators, led to the conclusion that a formal investigation of the effects of viewing oneself in motion pictures might result in finding that a change in concept occurs.

IV. Related Literature

Though many investigations have been concerned with the use of the motion picture as a technique for the study of phenomena (8), and (15) the investigation most pertinent to the present study was that reported by Wolff (14) in his observations concerning the expression of personality.

He reports that motion pictures of one's gait in walking, though the subject had never before perceived his gait visually, was readily recognized by the subject as his own typical movement. He also reports that the subjects in his experiment made self-judgments which tended to be emotionally favorable or unfavorable after viewing films of themselves. Although Wolff was studying the expression of personality, the use of motion pictures of the total body in motion as a technique for assessing self-recognition seemed to be more successful in eliciting accurate responses than did the tachistoscopic technique used for observation of body-parts. Wolff's investigation also showed that some change in self-concept tended to follow the subject's viewing of his movement. This tendency is reflected in the statement: "I see myself differently from within than from without."

Other studies (3), (7), (10) have used motion pictures as a technique for investigating selected aspects of the teaching-learning process in motor skill performance. The present study is in no sense designed to investigate the use of the motion picture as a device for technical analysis of the body mechanics involved in the motor skills performance. But it is designed to employ the motion picture as a visual stimulus which may provoke a modification in the expression of the concept the individual has of himself in performance of five motor skills.

V. Delimitations

1. Assumption:

The experience of viewing a motion picture of one's performance of selected motor skills will broaden the frame-of-reference within which he perceives himself in the performance of these skills.

2. Hypothesis:

An individual's expressed concept of himself in the performance of selected motor skills will be modified if his frame-of-reference is changed by means of an added physical stimulus such as the visual stimulus provided by his viewing of a motion picture of his performance of these motor skills.

3. Definitions:

Concept: Concept is defined, for the purposes of this study, as the self-judgment of an individual concerning specific movement experiences performed by him, the self-judgment arising from his reactions to a complex of perceptual stimuli.

Expressed Concept: The positive and/or negative responses an individual is willing to give concerning the way he thinks he looks during the performance of five selected motor skills.

4. Sub-Problems

a. What expressed concepts does an individual have of himself following the performance of certain selected motor skills?

b. What expressed concepts does an individual have of himself after viewing motion pictures of himself performing certain selected motor skills?

c. Do significant changes occur in expressed concepts following the viewing of a group film which contains pictures of oneself performing certain selected motor skills?

d. Is there a significant change in expressed concept following the viewing of a single loop film of oneself performing certain selected motor skills?

e. Are there significant differences between the results obtained through group viewing and the results obtained through individual viewing?

f. Is there a significant difference between the expressed concept of males and the expressed concept of females both prior to and after viewing?

g. Is there a significant difference between the expressed concept of female athletes and those of female non-athletes both prior to and after viewing?

h. Is there a significant difference between the expressed concept of male athletes and those of male non-athletes both prior to and after viewing?

VI. Sample

Sixty-five male and female subjects 17 to 21 years of age, participated in the study voluntarily. Subjects were obtained from: (1) general college physical education classes, (2) varsity teams for men, and (3) clubs and organizations for women sponsoring competitive events which require a high degree of skill. Table I shows the classification of subjects and the number completing the study. All subjects were students enrolled at the University of California, Los Angeles, Fall Semester 1960.

TABLE I

Category	Experimental Male		Experimental Female		Control Male		Control Female		Total M	Total F
Athlete - Individual	(A)	5	(B)	9	(H)	4			9	9
Athlete - Group			(E)	5			(M)	5		10
Non-Athlete - Individual	(C)	4	(D)	8	(I)	2	(J)	3	6	11
Non-Athlete - Group	(F)	5	(G)	4	(K)	3	(L)	3	8	7
Sub-Total		14		26		9		11	23	37
N = 60										

VII. Procedure

The procedures which were employed in this study are reported, for purposes of clarity, as Procedures for Phase I and Procedures for Phase II.

Procedure: Phase I.

Each subject performed the following five motor skills in sequence: (1) walked 30', turned around and walked to the starting point; (2) ran as fast as possible a distance of 30', turned without stopping and returned to the starting line; (3) caught five volleyballs thrown underhand from a distance of 15'; (4) threw five beanbags overhand to a target on the wall 30' distant; and (5) completed three standing broad jumps for distance. All subjects thought they were being filmed while actually movies were taken of only the experimental subjects. The control groups were not filmed. These groups were to be used at a later date to determine if a significant difference in their expressed perceptions of themselves would occur after repeating the performance of the five motor skills.

Films: Subjects were photographed at 24 frames per second on black and white film. A 16mm. Eumig camera and a 16mm. Bell and Howell camera were used. Kodak Tri-X film was employed.

Those subjects classified in Table I as "individual" performed with only the investigators present. Those classified as "group" performed with as many as four other subjects present, and in turn, observed the others perform.

Immediately following the motor skills performance, each subject was given individual standardized directions for responding to a Perception Checklist, hereafter referred to as Checklist 1, and permitted an opportunity to ask questions to clarify the directions if necessary. Checklist 1 was constructed and used by the investigators in earlier studies (4). It was designed to elicit responses from the subject concerning the way in which he perceived his movements during performance of each of the five motor skills. The checklist requires the subject to signify a positive or negative value for each of the responses selected by him. Written directions on the checklist are as follows:

"You have just performed a series of selected motor skills. How do you think you looked while performing each of the 5 skills? The following checklists contain words and phrases which may be descriptive of the way you feel about your performance. Select those words and/or phrases which describe the way you think you looked. If any word or phrase which you select describes a favorable impression you have about yourself in performance of the specific skill it describes, mark in the F column to the right of the number which corresponds to the word or phrase listed on the checklist.

If any word or phrase describes an unfavorable impression you have about your performance, mark in the U column to the right of the number which corresponds to the word or phrase listed on the checklist.

You may select as many words or phrases as you wish. However, you need not select all of them."

Statistical Treatment of Data Gathered in Phase I.

Responses to the checklist were tallied to determine the number of positive and/or negative responses given by each subject concerning his perception of his performance of each of the five motor skills. An Attitude Valence was determined for each subject for each motor skill through use of the formula Pr - Nr (Positive Responses - Negative Responses). Thus, an AV score (Attitude Valence score) was obtained for each subject on each of the five motor skills performances.

The mean AV score was computed for each of the 13 sub-groups for each of the five motor skills performances. The mean AV scores were then used to compare each sub-group with every other sub-group. Analysis of variance (12) was computed to determine if any differences in perception existed between groups at the completion of Phase I of the study.

Treatment of Film

The motion pictures taken during Phase I of the study were developed and printed in 300 foot reels. These films were cut and spliced into 26 loop films and three group films. Each loop film showed the complete and unedited performance of one individual. Two of the group films showed the complete and unedited performance of five subjects and one group film showed the complete and unedited performance of four subjects. Each group film was spliced so that the first subject was shown performing all five motor skills in sequence followed by the complete performance of the next subject and so on throughout the reel, thus enabling each subject whose pictures were on that particular reel to see his total performance as well as the total performance of each of the other three or four subjects on the reel.

Procedure Phase II.

Following the completion of Phase I the subjects were not given any direction concerning the study nor did any subject practice the motor skills which he had performed. A period of four weeks was allowed to elapse between Phase I and Phase II of the study. At the end of the four week period the subjects were asked to return to the laboratory.

Upon their return the subjects in each of the groups went through the following procedures:

Experimental Groups

Sub-groups A and B -- (A) Male Athlete Individual Viewers, (B) Female Athlete Individual Viewers -- and Sub-groups C and D -- (C) Male Non-Athlete Individual Viewers, (D) Female Non-Athlete Individual Viewers:

Each subject was shown a loop film of himself performing the five motor skills. The loop was allowed to run through the projector for four complete sequences without stopping. The subject was alone in the projection room during the viewing. Immediately after the subject had viewed himself as described above, he left the projection room and was seated at a desk where he proceeded to respond to Perception Checklist II. The checklist

was a facsimile of Perception Checklist I filled out during Phase I, but for a minor revision in the wording of the instructions. The first sentence was revised to read: "You have just seen yourself perform a series of selected motor skills," rather than: "You have just performed a series of selected motor skills."

Sub-groups E, F, and G -- (E) Female Athlete-Group Viewers, (F) Male Non-Athlete Group Viewers, (G) Female Non-Athlete Group Viewers. Groups E and F each contained five subjects. Group G was composed of four subjects.

Each group viewed the films of themselves. The group was alone in the projection room for the viewing and each group saw only the film on which the performances of the individuals forming that group had been recorded. The viewing was interrupted only three times by the projectionist when the film had to be re-wound and re-threaded for a re-run. Each group viewed its own film four times during the single viewing period. At the completion of the fourth run-through the subjects left the projection room and were seated at desks where they proceeded to respond to Perception Checklist II. The checklist was a facsimile of the instrument used in Phase I of the study with the minor revision in the wording of the first sentence in the directions as described previously.

Viewing Procedure

The decision to allow the subjects to view themselves (both individuals and groups) four consecutive times was arrived at through the findings from a pilot study (4) during which subjects were encouraged to view their pictures as long as they wished. The average number of times the pilot subjects viewed themselves was four. This amount of observation seemed to be most adequate in permitting subjects to remember enough of what they saw so that they could respond to the checklist adequately.

The directions given to both the individual viewers and the group viewers were as follows:

> "You are about to be shown moving pictures of yourself (yourselves) performing five motor skills in sequence. These pictures were taken four weeks ago when you performed these skills. Please view the films until you have seen four complete showings."

The films which each individual saw allowed him to observe the following views of his body in motion:

(1)	Walking:	Left profile, 3/4 back view from the left, full front view as he turned, 3/4 front view from the right and right profile.
(2)	Running:	The same views as in the walking sequence described above.
(3)	Catching:	Right profile.
(4)	Throwing:	(All subjects were right-handed) 3/4 front view from right side on preparation, right profile on delivery and release, 3/4 back view from the right upon follow through.
(5)	Jumping:	3/4 front view on preparation, right profile during jump, 3/4 back view from right upon landing.

The camera was stationed at the same point for all filming and was panned to follow the action, thus each subject saw precisely the same view of himself as did all other subjects. The same intensity of light was used for all filming, normal lens for all shots and the same lens opening. Although the pictures were taken at 24 frames per second on black and white Tri-X silent film, the projector was run at sound film speed. This process was found to approximate normal speed far better than films shot at 16 frames per second when tested in a pilot study.(4)

Control Groups

Sub-groups H, I, and J -- (H) Male Athlete Individual Performers, (I) Male Non-Athlete Individual Performers, (J) Female Non-Athlete Individual Performers:

Upon their return to the laboratory each of the subjects in these sub-groupings repeated the performance of the motor skills sequence four times. Environmental conditions were, in so far as possible, replicated exactly as they had been four weeks previously when the subjects had performed the motor skill sequence during Phase I. The time of day was the same as was the day of the week. Subjects wore the same type of activity clothes they had worn during Phase I. Each subject performed the sequence in the laboratory by himself with only the investigator present to give the same directions that had been given four weeks previously. Only two changes in procedure were made, (1) the subject performed the sequence in its entirety four times instead of once and (2) the camera was not present. As each subject completed this procedure he was seated at a desk and he responded to the Perception Checklist which was an exact duplication of the checklist to which he had responded four weeks previously.

Sub-groups K, L, and M -- (K) Male Non-Athlete Group Performers, (L) Female Non-Athlete Group Performers and (M) Female Athlete Group Performers: Sub-groups K and L each had three subjects and sub-group M contained five subjects. Each subject in each sub-group repeated the motor skills sequence performance four times. Those present in the laboratory during the performance were only those members of the particular sub-group going through the performance and the investigator who had been present four weeks previously during Phase I. The same directions were given each subject and the subjects performed the sequence in the same order as they had during Phase I, e.g., if subjects, in sub-group M had performed the sequence in Phase I in the following order: subject V first, subject W second, and subject X third, subject Y fourth, and subject Z fifth; then the same order of performance was followed during Phase II. Only two procedures differed from those employed in Phase I, i.e., each subject repeated a full sequence four times, the first performer completing one sequence, then the second performer completing one sequence, and so on until each subject in the group had completed one full sequence. This performance cycle was repeated three more times. The second change in procedure was the removal of the camera. Upon completion of the group performance as described, the subjects in that group were seated at desks and proceeded to respond to Perception Checklist II. The checklist was an exact duplicate, in all respects, of the checklist employed in Phase I of the study.

Statistical Treatment of Data Gathered in Phase II

An AV score was determined for each subject in both experimental and control categories from tabulations of his responses to the checklist at the close of Phase II. (See description of computing the AV score given in report of Phase I).

The AV score computed for each individual at the close of Phase I was matched with his AV score computed at the close of Phase II. The sub-groupings were kept intact for this process and the Direct Difference Method (12) was employed to determine the t-ratio for matched groups for each sub-group. Thus it was determined whether an experimental subject's responses to the checklist after viewing his performance of the motor skills sequence, as in Phase II, would differ significantly from his responses to the checklist immediately after performing the motor skills sequence in Phase I. The same statistical procedure was used to determine whether a control subject's responses to the checklist after his performance of the motor skills sequence a second time, as in Phase II, would differ significantly from his responses to the checklist immediately after performing the motor skills sequence in Phase I. The Direct Difference Method (12) was employed to determine the t-ratio.

Further, the mean AV score obtained on subjects who viewed only themselves on film loops were compared with the mean AV score obtained on subjects who viewed themselves on a group film to determine if viewing ones own performance on a loop film would elicit significantly different responses from those obtained from subjects viewing themselves and others.

VIII. Results

1. What expressed concepts does an individual have of himself following the performance of certain selected motor skills?

   As illustrated in Chart I the 60 subjects participating in this study responded positively about their concepts of themselves performing each of the five motor skills in the sequence at the conclusion of Phase I. The greatest possible number of positive responses for each of the motor skills was 30. The greatest possible number of negative answers was also 30. The mean scores for the total group were as follows: walking 5.6; running 6.0; catching 13.5; throwing 4.2; and jumping 1.4.

2. What expressed concepts does an individual have of himself after viewing motion pictures of himself performing certain selected motor skills?

   After the completion of Phase I the total experimental population responded as follows: the mean AV score for walking was 5.55; running 5.0; catching 13.0; throwing 4.7; and jumping .78. After viewing themselves on film this same group of subjects had a mean AV score for walking 5.57; running 4.0; catching 12.05; throwing 7.9; and jumping 2.0. Comparison between the data gathered from the total experimental group in Phase I and Phase II revealed a significant difference in response to the throwing skill. (Table II)

3. Do significant changes occur in expressed concepts following the viewing of a group film which contains pictures of oneself performing certain selected motor skills?

   Prior to viewing themsleves on a group film 14 of the experimental subjects, males and females, responded as follows: walking 3.3; running 5.2; catching 12.4; throwing 3.4; and jumping 1.6. After viewing themselves on a group film no difference in response was found. (Table III)

4. Is there a significant change in expressed concept following the viewing of a single loop film of oneself performing certain selected motor skills?

   Prior to viewing themselves on a single loop film 26 of the experimental subjects, males and females, responded in terms of mean AV scores as follows: walking 6.8; running 4.9; catching 13.9; throwing 5.4; and jumping 2.0. After viewing their loop films these subjects responded significantly more positively about their concepts of themselves in the skill of throwing. The t-ratio was found to be 2.29 which is significant at the 5% level of confidence. (Table IV)

5. Are there significant differences between the results obtained through group viewing and the results obtained through individual viewing?

   Prior to viewing films of themselves a comparison between those who viewed group films of themselves and those who viewed individual film loops of themselves revealed no significant differences between groups. After viewing their films those who viewed loop films of themselves were found to be significantly more positive about their concepts of themselves performing the catching skill than those who viewed group films. (Tables V and VI)

6. Is there a significant difference between the expressed concept of males and the expressed concept of females both prior to and after viewing?

   A comparison between the males in the experimental group and the females in the experimental group prior to the viewing of films revealed a significant difference only in their perceptions of themselves jumping. The females' mean AV score for their perception of themsleves jumping was the only mean score which was negative rather than positive. A comparison between these groups after they had viewed films of themselves shows that the females' scores for jumping rose from a negative response to a positive response and to such a degree that the difference which was found between the males and the females prior to viewing the films was no longer evident. (Table VII and VIII)

7. Is there a significant difference between the expressed concept of female athletes and those of female non-athletes both prior to and after viewing?

   Comparison between female athletes and female non-athletes prior to viewing themselves on film revealed that there were significant

differences in the perceptions they had of themselves in three skills. After viewing themselves on film there were significant differences between these groups only in the skills of throwing and jumping. (Tables IX and X)

8. Is there a significant difference between the expressed concept of male athletes and those of male non-athletes both prior to and after viewing?

   No significant differences were found to exist between perceptions of male athletes and male non-athletes prior to viewing themselves on film. After viewing films of themsleves there was still no significant difference between the perceptions they had of themselves. (Tables XI and XII)

9. Is there a significant difference between the expressed concept of the experimental group and the expressed concept of the control group at the completion of Phase I?

   The experimental and control groups were found to be alike in their expressed concepts of themselves performing the sequence of the five motor skills. (Table XIII)

10. Is there a significant difference in the responses of the control group after a repeat performance of the five motor skills?

    A comparison between the responses of the control group after their first performance of the motor skills sequence (Checklist I) and their responses after their second performance, four weeks later (Checklist II) showed no significant difference in their responses. (Table XIV)

IX. Discussion of the Findings

1. Cursory examination of the data derived from Phase I of the study indicates that the individuals participating in this investigation held concepts of themselves which were specific to the particular skill being performed. A more detailed investigation of this phenomenon may serve to show that specificity of concept of one's performance is as tenable a theoretical position as is specificity of skill in performance.

2. The consistency of the responses of the male subjects from Checklist I to Checklist II may be further evidence to support Witkin's (13) contention that males rely more on the clues received from "body sensation" than they do on clues from the visual field, thus, the males in this study may well have received no more additional information about their performance through the visual stimulation of the motion pictures than they had received through "body sensation" during performance of the skills. The females, on the other hand, who evidenced less consistency of response from Phase I to Phase II, may also tender further evidence in support of Witkin's findings that women tend to rely more on the visual field than on "body sensation." It may well be that the females received additional stimuli from viewing the films, whereas they received a limited number of perceptual clues through "body sensation" during performance.

Table I

Graphic representation of expressed concepts of 60 subjects concerning their performance of 5 selected motor skills. Data are shown by Mean Attitude Valence scores.

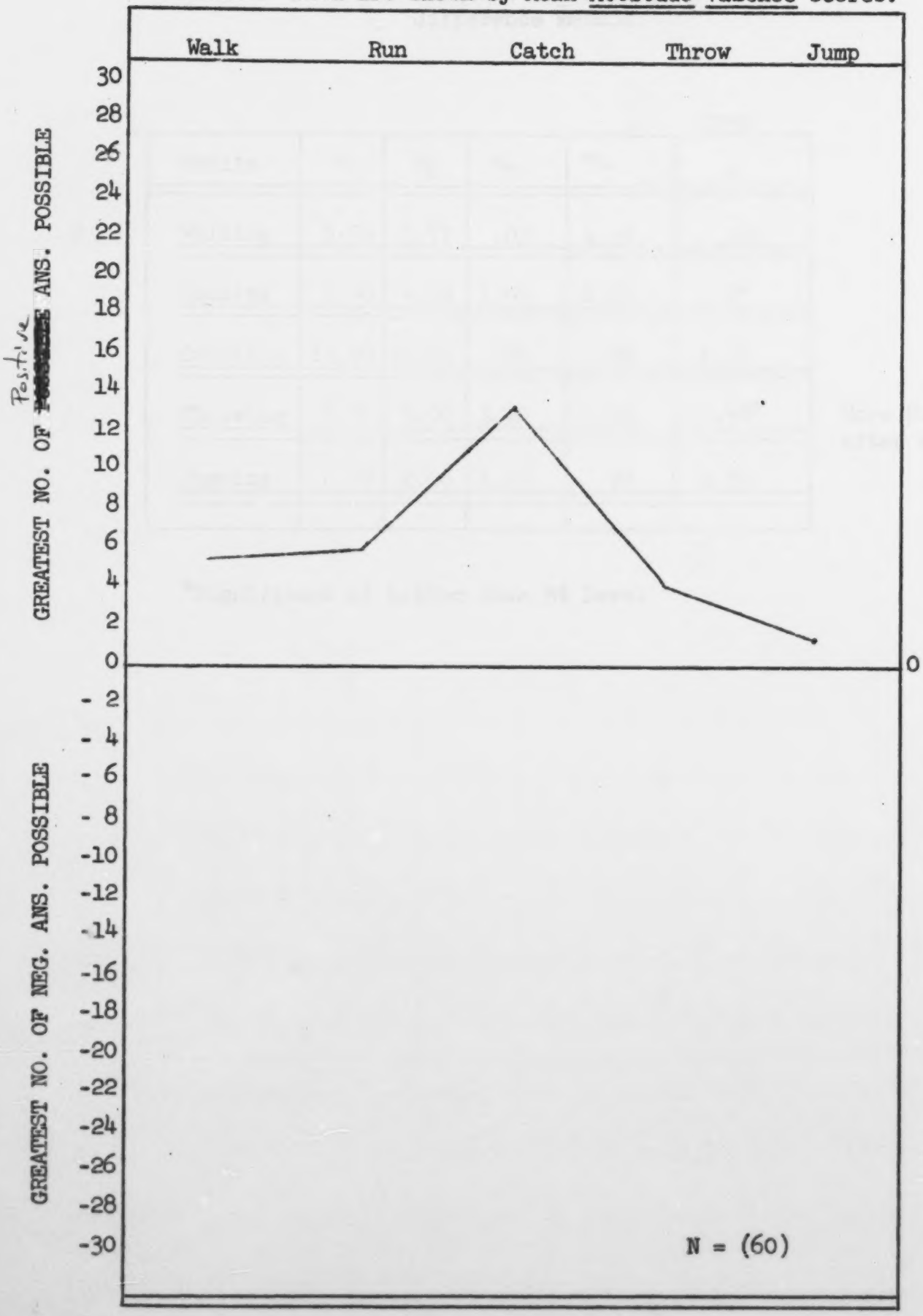

Table II. Total experimental group comparison between responses after performance and responses after viewing films of the performance. t-ratio, direct difference method.

df39

Skills	M_1	M_2	M_D	σ_{M_D}	t
Walking	5.55	5.57	.02	1.25	.001
Running	5.00	4.00	1.00	1.03	.97
Catching	13.00	12.05	.95	.82	1.16
Throwing	4.70	7.90	3.20	1.29	2.48*
Jumping	.78	2.00	1.22	.92	1.33

More Positive after Viewing

*Significant at better than 5% level

Table III. Group film viewers' responses after performance compared to responses after viewing a group film. t-ratio, direct difference method.

N = 14

Skills	M_1	M_2	M_D	σ_{M_D}	t
Walking	3.30	3.80	.50	1.77	.28
Running	5.20	2.40	2.80	2.47	1.13
Catching	12.40	10.40	2.00	1.19	1.68
Throwing	3.40	5.40	2.00	1.98	1.01
Jumping	-1.60	-1.00	.60	1.77	.34

Table IV. Individual loop film viewers t-ratio, direct difference method. Phase I compared to Phase II.

N=26 df25

Skills	M_1	M_2	M_D	σ_{M_D}	t	
Walking	6.80	6.60	-.20	1.68	-.1	
Running	4.90	4.90	0	-	-	
Catching	13.90	13.90	0	-	-	
Throwing	5.40	9.20	3.80	1.68	2.29*	More Positive after Viewing
Jumping	2.00	3.80	1.80	1.04	1.81	

*Significant (5% level)

Table V. Comparison between group viewers and loop viewers at completion of Phase I. Analysis of variance.

Skills		SS	df	MS	F
Walking	BG	100.30	1	100.30	1.26
	WG	3035.30	38	79.87	
Running	BG	28.56	1	28.56	.33
	WG	3322.44	38	87.43	
Catching	BG	-6.30	1	-6.30	-.18
	WG	1349.90	38	35.5	
Throwing	BG	54.84	1	54.84	.50
	WG	4179.36	38	109.98	
Jumping	BG	126.90	1	126.90	1.91
	WG	2528.50	38	66.53	

Table VI. Comparison between individual loop viewers and group film viewers at completion of Phase II. Analysis of variance.

Skills		SS	df	MS	F	
Walking	BG	80.32	1	80.32	.992	
	WG	3076.28	38	80.95		
Running	BG	32.50	1	32.50	.396	
	WG	3113.10	38	81.92		
Catching	BG	158.64	1	158.64	4.59*	Loop viewers more positive than group viewers
	WG	1311.76	38	34.50		
Throwing	BG	131.28	1	131.28	1.23	
	WG	4032.12	38	106.10		
Jumping	BG	213.04	1	213.04	3.19	
	WG	2534.56	38	66.69		

*Significant (5% level)

Table VII. Experimental subjects comparison between males and females at completion of Phase I. Analysis of variance.

Skills		SS	df	MS	F	
Walking	BG	41.82	1	41.82	.14	
	WG	3045.78	38	80.15		
Running	BG	41.52	1	41.52	.54	
	WG	2908.48	38	76.53		
Catching	BG	-4.62	1	-4.62	-.13	
	WG	1348.22	38	35.48		
Throwing	BG	145.60	1	145.60	1.34	
	WG	4099.80	38	107.88		
Jumping	BG	316.58	1	316.58	5.14*	Males more positive
	WG	2338.82	38	61.54		

*Significant (5% level)

Table VIII. Males and females compared after viewing. Phase II. Analysis of variance.

Skills		SS	df	MS	F
Walking	BG	14.70	1	14.70	.17
	WG	3314.70	38	87.22	
Running	BG	-58.82	1	-58.82	-.70
	WG	3171.22	38	83.50	
Catching	BG	-5.66	1	-5.66	-.03
	WG	7284.46	38	191.69	
Throwing	BG	121.82	1	121.82	1.00
	WG	4614.78	38	121.44	
Jumping	BG	137.44	1	137.44	2.06
	WG	2534.56	38	66.70	

Table IX. Comparison between female athletes and female nonathletes at completion of Phase I. Analysis of variance.

Skills		SS	df	MS	F
Walking	BG	236.76	1	236.76	3.43
	WG	1653.08	24	68.87	
Running	BG	190.18	1	190.18	5.57*
	WG	819.46	24	34.14	
Catching	BG	180.58	1	180.58	5.43*
	WG	796.88	24	33.20	
Throwing	BG	860.04	1	860.04	11.30**
	WG	1821.56	24	75.90	
Jumping	BG	80.32	1	80.32	1.37
	WG	1406.44	24	58.60	

*Significant at better than 5% level of confidence
**Significant at 1% level of confidence

Table X. Comparison between female athletes and female nonathletes at completion of Phase II. Analysis of variance.

Skills		SS	df	MS	F
Walking	BG	207.28	1	207.28	3.20
	WG	1568.08	24	65.30	
Running	BG	175.76	1	175.76	3.98
	WG	1058.48	24	44.10	
Catching	BG	145.98	1	145.98	3.60
	WG	952.26	24	39.70	
Throwing	BG	728.47	1	728.47	7.07**
	WG	2470.79	24	102.94	
Jumping	BG	290.26	1	290.26	5.52*
	WG	1259.24	24	52.46	

*Significant at better than 5% level of confidence
**Significant at 2% level of confidence

Table XI. Comparison between male athletes and male nonathletes at completion of Phase I. Analysis of variance.

Skills		SS	df	MS	F
Walking	BG	56.70	1	56.70	.62
	WG	1099.24	12	91.60	
Running	BG	139.53	1	139.53	.93
	WG	1759.31	12	149.60	
Catching	BG	93.94	1	93.94	4.32
	WG	260.44	12	21.70	
Throwing	BG	231.90	1	231.90	4.05
	WG	685.94	12	57.16	
Jumping	BG	78.52	1	78.52	1.28
	WG	733.24	12	61.10	

Table XII. Comparison between male athletes and male nonathletes at completion of Phase II. Analysis of variance.

Skills		SS	df	MS	F
Walking	BG	110.85	1	110.85	1.73
	WG	765.59	12	63.79	
Running	BG	123.78	1	123.78	.89
	WG	1655.76	12	137.98	
Catching	BG	7.88	1	7.88	.25
	WG	376.44	12	31.37	
Throwing	BG	75.00	1	75.00	.70
	WG	1284.96	12	107.08	
Jumping	BG	89.29	1	89.29	1.18
	WG	908.71	12	75.70	

Table XIII. Comparison between control and experimental groups at completion of Phase I. Analysis of variance.

Skills		SS	df	MS	F
Walking	BG	32.40	1	32.40	.77
	WG	2414.80	58	41.63	
Running	BG	117.00	1	117.00	1.88
	WG	3720.80	58	62.01	
Catching	BG	0.00	1	0.00	0.00
	WG	2238.40	58	38.59	
Throwing	BG	25.20	1	25.20	.18
	WG	8120.60	58	140.01	
Jumping	BG	50.60	1	50.60	.62
	WG	4741.60	58	81.75	

Table XIV. Comparison between control group responses at completion of Phase I and control group responses at completion of Phase II. t-ratio, direct difference method.

df19

Skills	M_1	M_2	M_D	σ_{M_D}	t
Walking	5.80	9.50	3.70	1.91	1.93
Running	7.90	5.90	-2.00	1.63	1.22
Catching	13.40	12.40	-1.00	.91	1.09
Throwing	3.00	7.80	4.80	2.41	1.99
Jumping	2.70	1.30	-1.40	.97	1.44

3. Consistency of self-concepts and their high resistance to change (6), (5), (11) makes all the more remarkable the significant differences in response found in this study.

4. While a great number of the responses, after film-viewing, were not found to be statistically significant differences from the initial responses, the strong trend toward a more positive expressed concept should not be minimized, nor ignored. This observed trend is most evident for those skills performances which were considered least positively by the subjects prior to viewing the films. Study of a less select and less skilled population might prove this trend to be a significant one. Another piece of evidence which cannot be overlooked is that which demonstrates that some groups which were significantly different before they viewed their films became similar in their responses after viewing the films, with those groups which were less positive becoming more positive after viewing the films, thus closing the gap between themselves and the more positive group.

5. Although the statistically significant evidence gained from this study is less than overwhelming, there is enough support given to the hypothesis to encourage the investigators to pursue further study of the use of the motion picture as a technique for stimulating individuals to modify their expressed concepts of themselves in the performance of motor skills.

X. Implications for Further Study

1. Since self-concepts are difficult to change in a short time span a study should be made of the effects of viewing films of oneself over a longer period of time involving more frequent viewing.

2. An investigation similar to the one just reported should be made using subjects in a younger age group.

3. Similar investigation of a population which expresses strongly negative attitudes toward physical activity should be studied.

BIBLIOGRAPHY

1. Axline, Virginia M., "Nondirective Therapy for Poor Readers." Journal of Consulting Psychology 11: 61-69, 1947.

2. Bixler, R. H., "Treatment of a Reading Problem Through Nondirective Physical Therapy." Journal of Consulting Psychology 9: 105-118, 1945.

3. Brown, M. Steven and Lloyd Messersmith, "An Experiment in Teaching Tumbling with and Without Motion Pictures." Research Quarterly 19: 304-307, December, 1948.

4. Clifton, M. A. and Smith H. M., Pilot Studies in Perceptions of Oneself in Movement. University of California, Los Angeles, Unpublished Studies, 1958, 1959.

5. Combs, Arthur W. and Donald Snygg, Individual Behavior: A Perceptual Approach to Behavior, (rev. 2nd ed. 1959). New York: Harper and Bros.

6. Lecky, P., Self-Consistency: A Theory of Personality. New York: Island Press, 1945.

7. Lockhart, Aileene, "The Value of the Motion Picture as an Instructional Device in Learning a Motor Skill", Research Quarterly, Vol. 15, No. 2, May 1944, pp. 181-187.

8. May, Mack A., "Psychology of Learning from Demonstration Films." Journal of Educational Psychology 37: 1-12, January 1946.

9. Monroe, Ruth L., "Diagnosis of Learning Disabilities Through a Projective Technique." Journal of Consulting Psychology 13: 390-395, 1949.

10. Nelson, Dale O., "Effect of Slow Motion Loopfilms on the Learning of Golf." Research Quarterly, Vol. 29, March 1958, 37-45.

11. Solley, Charles M. and Gardney Murphy, Development of the Perceptual World. New York: Basic Books, Inc., 1960.

12. Underwood, Benton J., Carl P. Duncan, Janet A. Taylor, John W. Cotton, Elementary Statistics. New York: Appleton-Century-Crofts, Inc., 1954.

13. Witkin, H. A., H. B. Lewis, M. Hartmann, K. Machover, P. Bretnall Meissner, and S. Wagner, Personality Through Perception. New York: Harper and Bros., 1954.

14. Wolff, Werner, The Expression of Personality. New York: Harper and Bros., 1953.

15. Zuckerman, John, "Effects of Variations in Commentary Upon the Learning of Perceptual Motor Tasks from Sound Motion Pictures." American Journal of Psychology 5: 303, July 1950.